4.14 PUBLIC SERVICES and UTILITIES

4.14.1 Impacts of the Proposed Master Plan

Construction

Fire and Emergency Medical Service

Construction impacts to fire protection and emergency medical services could include increased calls for service related to inspection of the construction site and potential construction-related injuries.

Police Service

The King County Sheriff's Office (KCSO) could experience an increase in calls for service related to construction site theft, vandalism, or trespassing. The need for police response would depend on the implementation of security measures during construction, which could include fencing, signage, lighting, and security patrols.

The KCSO storefront police substation may be temporarily relocated during redevelopment of the site. Construction of the new station, possibly located along 8th Avenue, will replace the existing station.

Community Services

The proposed project would result in the development of approximately 80,000 to 100,000 sq. ft. of community, social service, recreational, and neighborhood retail uses – an increase of up to 50 percent over existing uses.

Impacts in the form of service constraints could occur during construction. Existing services would continue in temporary, on-site locations, some of which could operate at reduced levels, depending on the extent of construction and/or demand for the service. Services would continue to be available to existing on-site residents and those temporarily relocated during construction. In addition, impacts from timing of construction activities, including relocation and/or alterations to existing programs, could be slightly greater during the early Spring and Winter season, the months that tend to coincide with less favorable weather conditions.

On-site community services would be available to residents relocating within the Burien and White Center area. KCHA would provide support services and coordinate with relocated residents to connect them to other program options. Programs could include employment services, social services, and programs for youth, the elderly, and the disabled (see *Section 4.9, Land Use*, Housing sub-section, for information on resident relocation).

Schools

The White Center Heights Elementary School and associated play fields are currently under construction, and would serve Greenbridge residents. The new school will have an enrollment capacity of 600 students. It will be completed by the Fall of 2004 and would accommodate the additional student enrollment from Greenbridge.

During construction, students residing on-site who attend school in the area will continue enrollment at his or her respective school. In cases where a family opts to relocate outside of the Highline School District (i.e., choosing a Section 8 voucher and not relocating to Greenbridge following construction), the student(s) would enroll in another school. This could affect enrollment in other districts (i.e., Seattle School District) to a small degree.

Construction workers would be drawn from the Seattle area. Relocation of workers from other areas is not anticipated. Likewise, no school enrollment increases associated with construction workers and their families would occur.

Utility Demolition

All existing utilities, including water, sanitary sewer, storm drainage, electrical and telecommunications lines, would be removed, replaced, or abandoned in place.

All existing on-site utilities within the proposed right-of-way would be removed. It is anticipated that any deep sanitary sewers would be capped and abandoned. All utilities exposed during grading operations would be removed to a point approximately two feet below the proposed subgrade. In general, pipelines less than 12 inches in diameter would be capped and those exceeding 12 inches in diameter would be filled and abandoned. Any existing manholes, catch basins, or vaults would be removed in their entirety and voids filled with structural fill.

Utility Construction

Redevelopment would require coordination with utility providers regarding the location of proposed structures, utilities, and site grading. New water and sewer mains would be installed in the dedicated public right-of ways and would connect with the existing distribution network.

Water

Where possible, water mains would be located approximately five feet from the centerline of roadways. A horizontal clearance of approximately five to ten feet would be provided from other utilities, depending on the depth of the other utilities. Minimum clearances would be required between water mains, trees, utility poles, and fences. A minimum horizontal separation of ten feet and a minimum vertical separation of 18 inches would be provided between water and sanitary sewer lines. All water distribution pipes of four inches and larger would be of ductile iron.

During construction of new water system infrastructure, the existing four-inch, eight-inch, and 20-inch water mains located at 4th Avenue SW and 8th Avenue SW would be kept in service and tapped for water distribution grid expansion. The existing water mains, notably the 48-inch trunk water main in 4th Avenue SW, would remain undisturbed during construction.

Demand for water would decrease temporarily in proportion to the number of residents who relocate off-site during construction (i.e., at the beginning of 2006, all residents would have been temporarily relocated off-site). Fire flow requirements would be accommodated in the construction of water mains. Buildings and/or units would be equipped with individual water meters, where appropriate.

Sewer

The existing sanitary sewer system was constructed in alignments and at depths that conflict with the Proposed Master Plan. For this reason, the majority of the gravity sewer system on-site would be reconstructed and located in standard locations within street right-of-ways. Typical location for the sanitary sewer would be five feet on either side of the street centerline. The existing Southwest Suburban Sewer District trunk line in 8th Avenue SW is proposed to remain provided the utility clearances are maintained.

Maintenance of portions of the existing sanitary sewer system would be required during construction to provide temporary service to existing residences. Depending on the stage of construction (Stage 1, Stage 2, Stage 3, or buildout) maintenance of the sewer system would include connections between new and existing mains, gravity connections, and diversion or pumping to facilitate construction.

The existing pump station does not have the capacity to accommodate an increase in density in the areas east of 4th Avenue SW but does have sufficient capacity to accommodate the Proposed Master Plan. The existing pump station could be modified to increase its capacity from 200 gallons per minute (gpm) to accommodate increased density under the Design Alternative Master Plan. The specific station upgrades and associated costs would be determined based on needed capacity. However, the pump station would remain in its current location. The force main would likely require reconstruction to accommodate the relocation of SW 100th Street.

Storm Drainage

The Proposed Master Plan incorporates an integrated storm drainage system that would provide drainage and conveyance based on the amount of impervious coverage (i.e., roofs, parking areas, walkways) within each block area. The plan includes "built green" and "low impact development" concepts to enhance stormwater control and reduce development-related impacts while still meeting the intent of the *King County Surface Water Design Manual* (KCSWDM). Development of the plan would result in lower infrastructure cost than other alternatives. (See *Section 2.6.5, Stormwater and Utilities* for a description of the proposed system).

Construction of the storm drainage system would incorporate elements of the 1998 KCSWDM and Built Green and Low Impact Development (LID) design principals. Under LID, certain design elements and BMPs could vary from the KCSWDM standards (see *Section 4.3, Water Resources*).

Solid Waste

Solid waste would be generated from demolition and new construction activities for roads, buildings, and other man-made structures. Demolition waste typically consists of concrete, brick, wood, masonry, composition roofing, steel, and other metals. Construction waste typically consists of trimmed scraps of building materials and surplus classroom and/or office equipment and furniture. Demolition debris from certain areas within the proposed site may contain hazardous materials and is addressed in *Section 3.8, Environmental Health*.

Disposal of construction and demolition debris from redevelopment activities would occur at the Cedar Hills Landfill. On-site recycling would occur as part of the Built-Green strategy. See *Section 3.8, Environmental Health,* for additional information related to disposal of on-site hazardous wastes.

Electricity

Most electrical lines would be removed, replaced, or abandoned during redevelopment. It is anticipated that electrical infrastructure to the project site would continue to be located underground. The existing overhead power located along 8th Avenue SW would likely be removed and located underground. Substantial costs may be associated with this underground relocation due to the size of the power lines and the temporary system required to maintain uninterrupted service.

During construction, the demand for electricity from the project site would temporarily decrease in proportion to the number of residents who relocate off-site.

Natural Gas

Gas lines would be laid in the on-site common dry utility trench. Separate power and gas meters would be provided for each dwelling unit. Piping and conduits would be installed through building walls.

Telecommunications

Telephone and cable service that is currently provided underground in a joint trench through the rear of the units would be removed, abandoned, or relocated underground (i.e., under sidewalks) or in easements next to the public right-of-way. To minimize disruptions to customers during construction, temporary lines would be installed as needed.

Demand for telecommunications services would temporarily decrease on-site and increase elsewhere, in proportion to the number of residents who relocate off-site.

Operation

Fire/Emergency Medical Service

Because calls for service are primarily a function of population, it is possible that the proposed increase in housing units and corresponding population associated with the Proposed Master Plan would increase demand to an extent for fire and emergency medical services. The maximum population under this alternative is estimated at approximately 2,832 people.[1] Fire and emergency medical demands could increase relative to the net increase of 1,176 residents (approximately 42 percent increase in population). However, the net increase or decrease in emergency calls is expected to be negligible. Response times would likely remain unchanged.

North Highline Fire District's (NHFD) Class 3 rating would result in lower fire insurance rates for Greenbridge residents, community service providers, and commercial uses. In addition, the

[1] Based on the proposed maximum number of housing units (1,100) using US Census 2000 data for the number of housing units and occupancy rates within the study area.

increased number of housing units and potential for higher property values would benefit the District's revenue/taxing capacity. For every $1,000 of assessed property value, NHFD receives $1.50.

The North Highline Fire District does not anticipate changes to staffing, equipment, or facilities, as a result of the Greenbridge development. A recent capital improvement bond provided for the purchase of new equipment and upgraded facilities.

Police Service

As with fire and emergency medical services, there would likely be an increase in service calls due to the increase in population. The proposed project could also increase demand for police-sponsored community programs.

It is anticipated that KCHA would continue the majority of funding for the KCSO storefront police substation. Staffing and available services will likely remain unchanged, as described in *Section 3.14, Public Services and Utilities*, unless the need is determined by KCSO and public input. KCSO does not currently staff this substation based on an LOS standard. Program enhancements could include a Block Watch Program and a Crime Prevention Program.

KCSO does not anticipate impacts or resource constraints on its existing staffing levels, equipment, or facilities from the increase in population. Response times would likely remain unchanged.

Community Services

Overall, it is anticipated that operational impacts to community services would be positive. Development of the Proposed Master Plan would enhance and increase community programs and services provided on-site. With the increase in residential population and the ability to serve clients, there would likely be an increase in the use of services. Greater use by residents could contribute to an increase in program funding (through fees), which would generate increased income for the service organizations. Certain organizations rely on fees, in part, to provide program funding.[2]

Community services would be located proximate to the Wiley Community Center. Existing services would be redeveloped and expanded to include additional square footage. They include: Boys and Girls Club (renovated Wiley Community Center); YWCA Park Lake Career Development Center; High Line Head Start and Child Care; King County Housing Authority offices; Highline Community College; Neighborhood House; Park Lake Community Council; Highline School District Tutoring/Family Center; King County Sheriff storefront location; White Center Food Bank; Park Lake/White Center Clothing Exchange; and Washington State University (pea patch program). New facilities would include the King County Branch Library, neighborhood-scale retail facilities, and meeting and gathering places.

Facilities and infrastructure improvements would be expected to improve serviceability to program and service users. Expanded and entirely new amenities would include meeting and computer access areas, classrooms, art studio(s), multi-purpose rooms, lounge areas, enhanced library services, gym and recreation areas, playfields, and playgrounds. In addition,

[2] Tonkin, Hoyne, Lokan, 2003.

new buildings would include features, such as air conditioning, improved air circulation, lighting (i.e., brighter or more natural), and improved accessibility for disabled persons. Many features planned for the new buildings were either non-existent or viewed as inadequate in existing Park Lake Homes buildings.[3]

Schools

The Proposed Master Plan would result in a net addition of roughly 403 students to the Highline School District.[4] The estimate is based on a maximum of 1,100 housing units, the type of housing proposed (mix of rental, market-rate, and public housing), and the typical ages of residents for area housing types. Elementary and middle school children (ages 6 to 14) would make up the greatest number of students from the project site (approximately 50 percent), followed by children 5 years and younger (approximately 30 percent) and adolescents at 15 to 17 years old (less than 20 percent).

Construction of 900 housing units would result in a slightly lower net number of students (approximately 271) dispersed among the various grade levels.

Students would be enrolled in the schools serving the proposed site (*Section 3.14, Public Services and Utilities*).[5] HSD has identified adequate enrollment capacity at area schools. No impact on school services is anticipated from potential enrollment increases. KCHA estimates that 71 percent of the existing residents intend to relocate to the project site, which would have little impact on school enrollment numbers. Any reduction in enrollment would be offset by the addition of new residents (based on housing units) to the site.

The new White Center Heights Elementary School, currently under construction, would provide elementary-age students with a new facility with capacity (600 students) to serve existing area enrollment needs and future growth.

Water

Residential water demand is projected based on the number of proposed housing units multiplied by the persons per household and a standard water demand criteria of 100 gpd/capita. Based on the range of housing units of 900 to 1,100 (with an estimated population of 2,313 to 2,832 residents), total residential demand for water would range from approximately 231,300 to 283,200 gpd. The net residential water demand would range from approximately 65,700 to 117,600 gpd.

Irrigation demand for landscaped areas is estimated for the peak usage period between May 15 and September 15 and assumes 1,312,500 sq.ft. of irrigated land and one-inch per week of irrigation. Total irrigation demand is estimated at roughly 68,200 gpd.

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[3] I bid.

[4] Based on an estimated Greenbridge population of up to 871 persons aged 17 years and younger for 1,100 housing units. This population figure was generated by estimating the number of public housing residents (1,008) and non-public housing residents (1,824) at Greenbridge and multiplying the numbers by the average percentage of students ≤17 years of age currently residing at Park Lake Homes (40.3 percent) and in the surrounding study area (25.5 percent). Percentages taken from *Section 3.9, Table 3.9-5*.

KCHA resident surveys indicate that an estimated 70 percent of the population will likely return to Greenbridge. Of the existing 669 residents (ages ≤17 years), 468 could return. The net difference between these returning and new residents is 403 students.

[5] There are 5 elementary schools (generally K-6), 2 middle schools (7-8), and 1 high school (9-12) in the surrounding area.

The total water demand for residential and irrigation uses is estimated at 299,500 gpd with 900 housing units and 351,400 gpd with 1,100 units.

In the event of a fire, fire flows for larger buildings are estimated to require between 4,000 gpm and 2,500 gpm.

Sanitary Sewer

The total wastewater flows under the Proposed Master Plan would be slightly greater than the residential and irrigation water demand.[6] At 900 and 1,100 housing units, total sewer flows would be approximately 925,200 gpd and 1,132,800 gpd, respectively. The net increase in flows as a result of the redevelopment would be approximately 262,800 gpd (at 900 units) and approximately 470,400 gpd (at 1,100 units).

Storm Drainage

The application of "built green" techniques would encourage the use of natural drainage systems that could include: vegetated and grassy swales for filtering and storing stormwater; greater use of pervious materials; and preservation of mature trees to enhance drainage function. Please see *Section 4.3, Water Resources* for discussion of site drainage features.

Solid Waste

After redevelopment, KCHA would cease its role in solid waste collection at the site and contract with an outside purveyor, such as Waste Management.[7] Contracting with an outside service provider could enable KCHA to provide recycling services to on-site users while reducing the amount of landfill-bound waste.

Waste collection would likely occur with the same frequency (once per week) as at present. The amount of waste collected will increase relative to the increase in residents and new community service providers. Solid waste generated by the proposed project is not anticipated to adversely impact the Cedar Hills Landfill. The landfill has a projected capacity of approximately 12 million tons.

Telecommunications

Additional telecommunications service would be required to meet the increase in demand from both residential and non-residential uses. No significant impacts to service providers are anticipated.

[6] Assumes 100 gpd per person with a peaking factor of 4.0.
[7] Kier, KCHA, personal communication, 2003.

Cumulative Impacts

The Proposed Master Plan would contribute to an increase in population in conjunction with other development projects in the local area, although the cumulative increase is not anticipated to be significant. Minimal development is occurring in the surrounding area.[8] The Seattle Housing Authority's High Point project, located within approximately three miles, represents the most significant development in the local area. However, given the considerable distance between Greenbridge and High Point, impacts on public services and utilities are not likely. To the extent that public service agencies have anticipated this cumulative growth in their planning and can accommodate the increased demand, no long-term cumulative impacts would occur.

Demands on utilities would increase as a result of cumulative development. To the extent that utility service agencies have planned for future service demands, no significant cumulative impacts are anticipated.

Implementation of the Community Weed and Seed Program (see *Section 3.14, Public Services and Utilities*), which is directed at reducing drug and criminal activity, could decrease incidents of Part I and Part II offenses on-site and throughout the surrounding community.

4.14.2 Impacts of the Alternatives

Design Alternative Master Plan

Construction

Construction impacts to public services and utilities would be similar to those described under the Proposed Master Plan, including number of emergency calls for construction-related incidents and demand for fire inspections. All utilities (water lines, sanitary sewer, storm drainage, electrical, telephone, and cable) would be removed and replaced in two phases, as under the Proposed Master Plan.

Operation

The increased demand for public services and utilities would be similar to the Proposed Master Plan, given the equal range of potential housing units (900 to 1,100) and amount of non-residential and community service uses. Residential water use would remain unchanged between the alternatives and sewer flows would generally remain unchanged. Response times would also be consistent between the alternatives.

The existing pump station does not have the capacity to accommodate an increase in density in the areas east of 4th Avenue SW but does have sufficient capacity to accommodate the Proposed Master Plan. The existing pump station could be modified to increase its capacity from 200 gallons per minute (gpm) to accommodate increased density under the Design Alternative Master Plan. The specific station upgrades and associated costs would be determined based on needed capacity. However, the pump station would remain in its current

[8] King County DDES records indicate permit applications for two subdivisions totaling 18 single-family residents. The proposed projects would be located within 13 blocks or more to the west of Greenbridge. In addition, a telecommunications antenna is proposed for 610 SW Roxbury Street, located to the north and adjacent to Greenbridge within the City of Seattle.

location. The force main would likely require reconstruction to accommodate the relocation of SW 100th Street.

Redevelopment under the Design Alternative Master Plan would not incorporate "built green" design principles. The distribution and function of impervious surfaces and storm drainage components would reflect the standards set forth in existing King County development requirements, rather than the more innovative approach contained in King County's newly-adopted demonstration ordinance. There would be a greater area of impervious surface and a fewer "eco-friendly" site components (i.e., building materials and water quality improvements). See *Section 4.3, Water Resources,* for an analysis of storm drainage.

Landscaped areas would be greater by approximately 62,600 sq.ft., requiring additional water for irrigation, or an estimated 3,200 gpd more than the Proposed Master Plan (71,400 gpd in all). Total water use for residential and irrigation uses is estimated at 302,700 gpd for 900 housing units) and 354,600 gpd for 1,100 housing units.

No Action Alternative

No impacts to public services and utilities would occur. Existing services would continue through the existing infrastructure. The sewer system would remain inadequate, according to King County design standards.

4.14.3 Mitigation Measures

Fire/Emergency Medical Service

All new buildings would be constructed in compliance with King County Code, including provision of emergency egress routes and installation of fire extinguishing and smoke detection systems. All buildings would comply with accessibility standards for people with disabilities (per the requirements of the Americans with Disabilities Act).

The North Highline Fire District has identified several design factors, beyond compliance with building and fire codes, which should be considered as part of the redevelopment. Construction of speed bumps, steep curves, and steep grading associated with vehicle access should be avoided. Fire hydrants should be no more than 150 feet from community and commercial structures and no more than 350 feet from other buildings. The District also commented that tree heights should be considered to ensure that a 13 ft. 6 inch vertical clearance is maintained anywhere fire apparatus vehicles travel, including arterials. Access roads should be a minimum of 20 feet in width.

Any secured areas (i.e., buildings or gates) would require provision of a "knox box," a fire service access box containing master keys, which would facilitate access to the site by fire and emergency medical crews.

Police Service

During construction, security measures would be implemented to reduce potential criminal activity, including on-site security surveillance, lighting, and fencing to prevent public access.

Street layouts, open space, and recreation areas would be designed to promote visibility for residents and police. Parking areas would be lit with security lighting to discourage theft or vandalism. Block watches would be formed and physical security systems would be installed, where appropriate.

The King County Sheriff's Office, Greenbridge residents, KCHA management, and community service agencies would coordinate and implement management principals and policies to improve on-site security. Measures to improve safety would include the soon to be created Community Weed and Seed Program, KCSO outreach services (provided through the police storefront location), and community policing.

Schools

No mitigation measures are necessary or proposed.

Community Services

The timing of construction activities, such as the relocation or alteration to existing community service operations and/or programs during periods of typically inclement weather, would be taken into account in order to reduce impacts on community services.

Utilities

All utility service line work would be conducted in compliance with King County and Washington State utility requirements, including the construction of temporary service lines to avoid construction-related impacts to existing customers. Design of the proposed water distribution facilities would also comply with criteria established in the Seattle Public Utilities Design Standards, the King County Water District No. 45 Standards for Constructing Extensions to the Water System. In addition to compliance with state requirements, the proposed sewer system would be designed and constructed per the criteria established in the Southwest Suburban Sewer District Comprehensive Sewer Plan (1999) and the Southwest Suburban Sewer District Developer Project Manual (2002).

Most of the electrical and telecommunication cables would be installed underground to minimize disruption to the natural environment. All connections to existing utilities along perimeter roadways would be coordinated with utility providers.

Hydraulic modeling of the entire water distribution system would be conducted prior to building permit issuance to verify and assure that required fire flow needs are adequate. Should additional fire flows be required beyond what has been anticipated, an additional intertie may be made between the Seattle Public Utilities and King County Water District No. 45 systems. The modeling would also indicate any reduction in fire flow surrounding the White Center Heights Elementary School as a proposed water distribution connection.

To mitigate for potential stormwater impacts and to protect downstream resources, development of the stormwater drainage system would incorporate a combination of basin diversion, flow control facilities and LID elements to reduce the amount of impervious area. The combination of design techniques to reduce impervious surface area would include roof drain perforated stub-out connection systems and roadside bio-filtration swales. In developed sub-basins, roof runoff

would be captured in roof drain downspout systems, incorporating a perforated stub-out connection. In portions of developed sub-basins, road runoff would drain to bio-filtration swales located along the roadsides.

Existing on-site buildings would be demolished in accordance with approved hazardous material abatement methods. Debris would be disposed of at appropriate facilities. The goal of diverting 80 percent of eligible construction waste from the landfill would be used as a target.

4.14.4 Significant Unavoidable Adverse Impacts

Demand for services and utilities would increase in conjunction with population growth. No significant unavoidable adverse impacts related to fire/emergency medical, police, schools, community services, or utilities are anticipated.